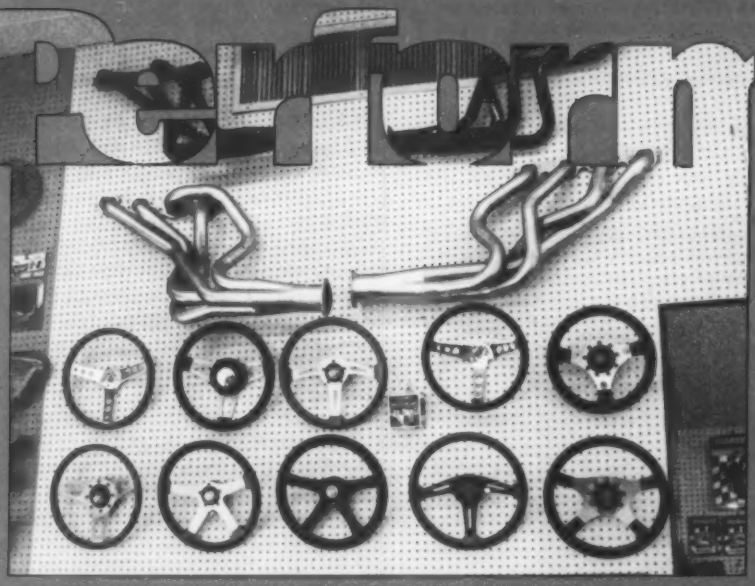
DECEMBER 1982

DRIVER

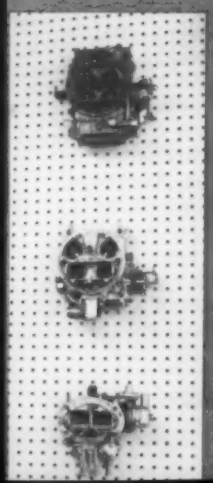
THE BACKYARD MECHANIC
SNOW TRICKS
WINNING ATTITUDE
GASABLANCA

Performance



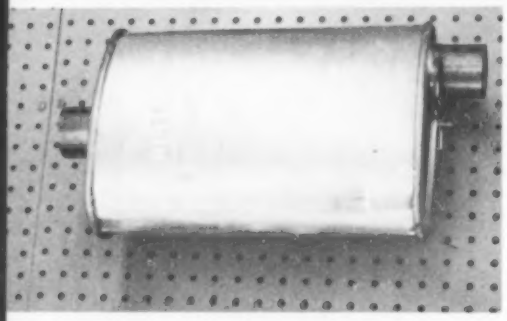
AND CATCH-

55



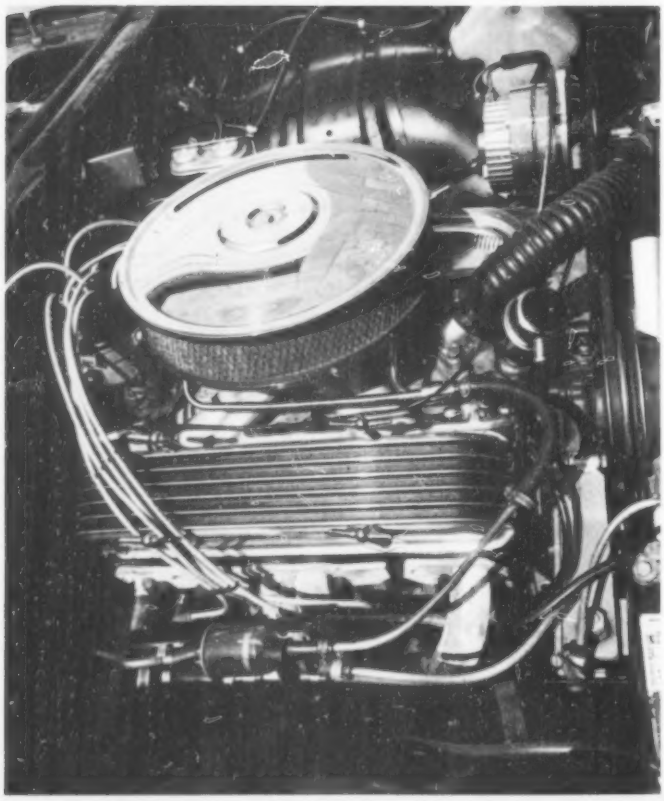
DRIVER

PERFORMANCE



(left)
A less restrictive muffler will allow exhaust gases to escape more quickly from the engine.

(below)
An engine outfitted like this one will be more powerful than a stock motor but might also be illegal by the anti-pollution standards.



There's a catch to driving a performance car and it's just what you'd expect. Powerful cars use a lot of gas and they use it faster than other cars.

This was less of a problem when gasoline was cheap, when you could afford to fill up every few days as the car blew it all out the tailpipe. Today, however, everyone is concerned about the miles per gallon a car can attain, even those drivers who used to talk only in terms of acceleration and quarter-mile times.

And yet, the "performance shops," those stores that sell accessories to increase the power and handling of cars, are advertising they can increase both performance and economy. It sounds contradictory. Well, it is and it isn't. Those two subjects, performance and economy, are more compatible than you might think. It all depends on what you want.

If you're looking to blow Porsches and Turbo Saabs off the road and still get 35 miles to the gallon, you can forget it. But if you're willing to go for "moderation in all things," you might be pleased with what you can accomplish.

First, let's define some terms. By "performance" here we don't mean the above-mentioned Porsche-killer, but something you will still enjoy to drive. By "economy" we don't mean the half-century mark in miles per gallon, but at least a level that won't suck your wallet dry.

AND CATCH-55

and Catch-NOx and Catch-MPG . . .

As we suggested above, "performance" is really two things, power and handling. The way a car handles has no effect one way or another on fuel economy. But the power-increasing accessories do have an effect. Let's look at a few.

Accessories after the fact: What are some of the things you can add to your car to increase its power? A change to a four-barrel carburetor, the addition of a "performance" intake manifold, dual exhausts and headers, a performance camshaft, a less restrictive muffler, a lower rear axle ratio, a higher compression ratio; all of these can aid performance.

And what are some things that can be added to the car for economy? A less restrictive muffler, headers, a ram air charger, a higher compression ratio . . .

Do you notice some repetition there? Interestingly enough, some of the performance accessories you can install on your automobile can improve its fuel economy.

For instance:

Headers are the exhaust manifolds that performance shops sell to replace the stock items. Made of tubular steel, they draw the exhaust gases out of the engine faster and more efficiently. This increased efficiency adds to the performance of the car, and in theory also increases the fuel economy.

A "performance" intake manifold also adds to the engine's efficiency. On a stock factory engine the carburetor sits on top of the center of the engine. When it mixes the fuel and air, the center cylinders get a richer mixture and the other cylinders, at the front and back of the engine, get a leaner mixture. Both economy and performance suffer. A "performance" manifold is designed so that each cylinder receives the same fuel/air charge. This, not surprisingly, boosts both the performance and the economy.

Headers will help by themselves, but if the mechanic wants to put on the intake manifold, he should also invest in the headers. If the fuel goes into the engine quicker and more efficiently, it needs to get out quicker and more efficiently.

A less restrictive muffler will improve the flow of exhaust gases out of the engine. The lowered back pressure will aid gas mileage and performance.

Sometimes the hunt for both performance and economy can get complicated. For instance, a higher rear-axle ratio will improve mileage, whereas a lower rear-axle ratio will step up the car's performance. However, if the low rear-axle ratio is mated to a five-speed transmission, you can have some of both worlds. This is because the fifth gear acts as an overdrive gear.

In theory (again), even a four-barrel carburetor will not hurt economy. That is, if you don't step on the gas hard enough to open the secondary barrels in the carb, you won't lower your miles per gallon. With most people, that's a pretty big stretch of the imagination.

Catch-NOx: Are you beginning to get a little suspicious about this whole discussion? Does it sound a little *too* good to you? "So maybe I can have power and economy both, within certain limits. But there's got to be another catch here somewhere."

Congratulations; you've figured it out. There is a catch — it's the emissions. Some of the accessories we've mentioned will not only increase fuel economy and the performance, they will also increase the amount of pollutants that the car puts out.

Of course, it's a very individual problem. Some cars can be fitted with some of the items and will not become illegal. Some other cars can't take any modifications to the engine at all. It also depends on the emissions laws in the state in which you drive — some are stricter than others.

Catch-55: And while we're talking about things illegal, there's still another catch. Really fast driving is against the law because of the maximum speed everywhere in the country of 55 mph. Your car may be set up to accelerate to 75 in a matter of seconds, but such sprints will make you very popular with the police.

And there are other drivers to think about. They aren't expecting you to drive around them at 10, 25, or 40 mph over the speed limit.

A couple of answers may help you around these catches. One is to save

continued

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DEC

VOLUME 16 NUMBER 7

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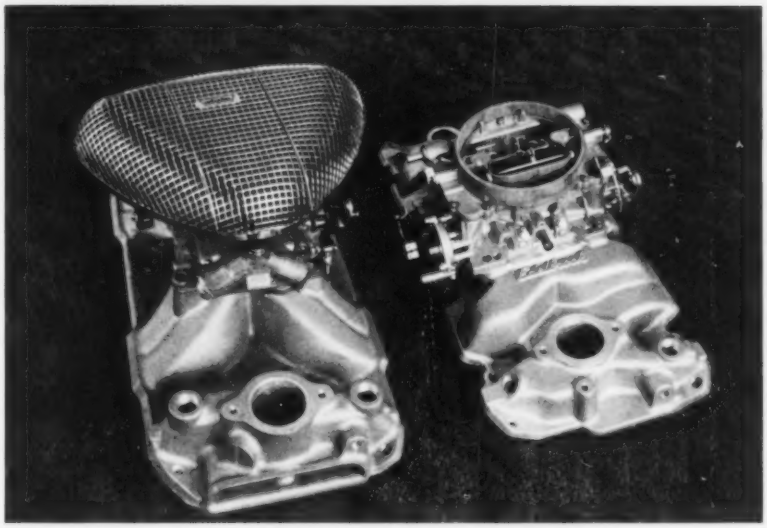
continued

(left)
Performance wheels are wider and allow the use of wider tires with more road-holding ability.

(below)
Performance intake manifolds are designed so that each cylinder in the engine receives the same fuel/air mixture. This increases both the power and the economy of the auto.



your fast car for driving on a track or drag strip where it's legal. Not everyone wants to go to all that trouble and expense, however.

The other idea involves the other side of performance. Performance, after all, is more than a streak of rubber, a spray of gravel and enough acceleration to put you in the back seat. Extra horses are frustrating if you can't use them.

Handling is equally as important as cubic inch displacement, or perhaps even more so. Everyone knows a story about a car with a huge engine that is left behind by a car with a much less powerful engine but very much superior handling.

Whereas not every car can be modified to give a 12-second quarter mile (or perhaps not legally, anyway), all cars can be worked on to make them handle better.

Some added benefits are that if the car handles better, it is safer, and it is also more fun to drive.

Hold on: Modifications to improve the car's handling involve changing parts in the suspension that will give a stiffer ride with more "road feel." This will make the car feel like a sports car, even without the excess power under the hood.

Stiffer shock absorbers will improve the handling of the car by making it hold the road better in turns and emergency maneuvers. The ride will be harder as well. The addition of an anti-sway bar (or a thicker one if the car is already so equipped) will add to this effect.

Beyond these, the mechanic can install improved brakes that will avoid the fading that is so common with stock units.

Air dams and spoilers will also help the car's aerodynamics and road-holding.

All of these things are to support the action of the most important performance accessories — the tires. Wider tires and wheels provide greater traction and steering control, just as they do on the racing cars. They give more contact with the road and improve the car's action in all maneuvers — acceleration, braking and turns.

These are more the kind of modifications that are made on cars that race in competitions such as the races involving identically-prepared VW Rabbits or Toyota Supras. Few changes are made to the engines;

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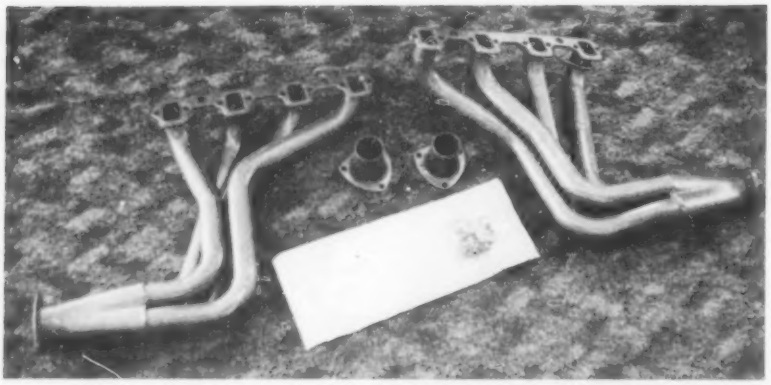
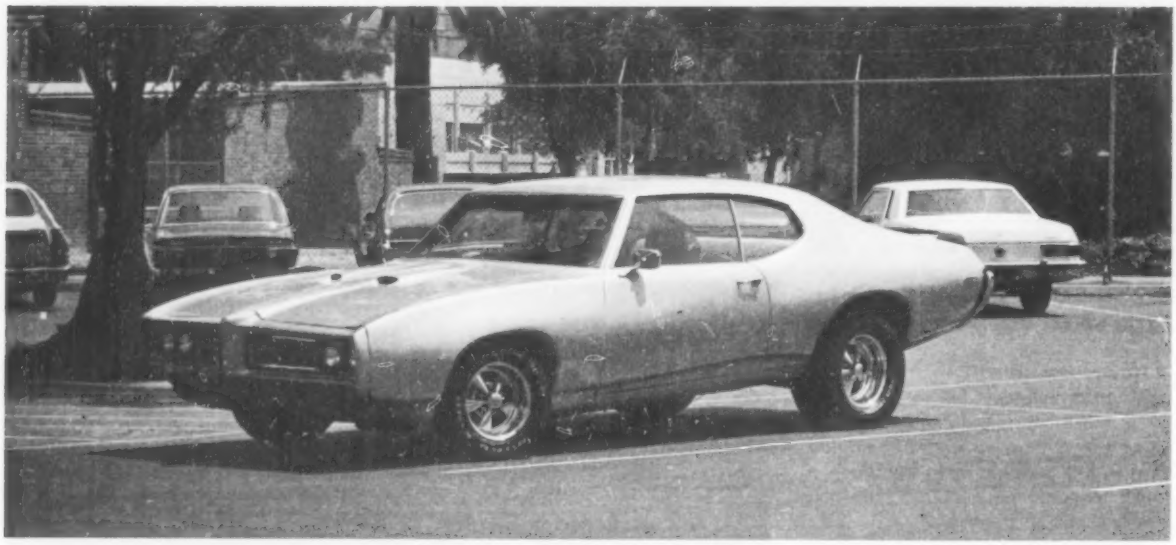


(left)
Headers are special exhaust manifolds that move the exhaust out of the engine faster and more efficiently.

(right)
Races involving identically-prepared cars, such as the Rabbit/Bilstein Cup, display the benefits of changes to the car that improve its handling.

(below)
Some powerful cars, such as this old GTO, can take some modifications without becoming illegal. Some other cars may not be modified at all.



Look, Ma! No Brakes!

Since we've eliminated gut-wrenching power as an acceptable definition of performance, what about the handling side of it?

most are suspension modifications.

This kind of thinking makes a car that is fun to drive, is completely legal by clean air standards, and is also economical.

Catch-MPG: As we said before, today everyone is thinking about the fuel economy of their cars. Gasoline is so expensive now that many people think about getting rid of their gas-hogs and buying less thirsty models. But car loans are so costly that it is cheaper to fill up a gas-guzzler that is paid for than to buy a new, economical car.

Don't despair, however. No matter what car you drive, you can get superior gas mileage. "Superior" might mean only "better than you get now," but every little bit helps.

The prime gas-wasting technique in performance cars (as in all cars, really) is rapid acceleration, and our advice is to take it easy.

When the revolutions per minute (rpms) are high, you're using more gas than you need to. The idea is to

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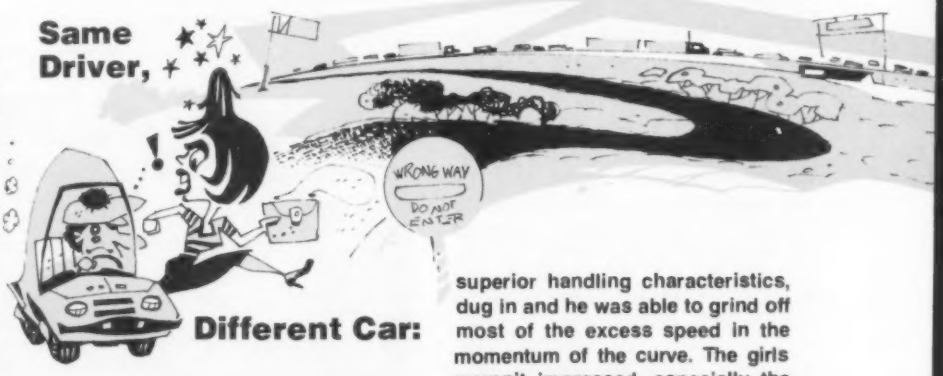


Same Driver, Different Car:

Let's take a couple of examples of handling. Neither one is recommended, but one of them will give you a general idea.

A driver was taking his car down a mountain highway at the speed limit. The curves in the road were not especially sharp, and he decided to take them without braking to prove he could drive well. He twisted the wheel for several minutes with cold, tightened fingers as he took each turn in the road. He stayed off the brakes but he felt he was doing something stupid; the car just didn't handle very well. His passenger told him later she felt like he was on the verge of losing control of the car. He was annoyed, because she was right.

He was driving on an intercity freeway with two girls he wanted to impress with his driving ability. He took an offramp with a sharp right-hand bend at the speed limit, without braking. The car, because of its superior handling characteristics, dug in and he was able to grind off most of the excess speed in the momentum of the curve. The girls weren't impressed, especially the one in the back seat, who bumped her head on the roof.

Like we said, these are not examples to copy, but they show the superiority of the good-handling car.

continued

keep the rpms as low as you can. First, avoid the quick starts off the line that people call "jackrabbit" starts. Start out smoothly and slowly.

To keep the rpms in the low range, get the car into high gear as soon as you can. If your car has a tachometer, you can see how this works. The longer you accelerate in low gears, the higher the rpms will be. Shift into high as soon as you can and accelerate in high. On cars with automatic transmissions, ease off the gas pedal just as the car reaches a shift point, because this makes it shift sooner and more smoothly.

The economy of low rpms is the reason for the advice you often hear about driving between 30 and 40 mph. In this speed range, the car is in high gear and delivering maximum fuel economy for the speed. Much faster than this and the mpgs start to go down, because of wind resistance and the like.

Downshift to a lower gear if the engine begins to labor, because in this case a lower gear will be more economical. However, don't downshift to slow the car; use the brakes.

When you are approaching a hill, accelerate the car before you begin the climb. This will be more economical than trying to floor it as you go up. Ease off the gas a little just before you reach the top of the hill and let the car's momentum take you over the top.

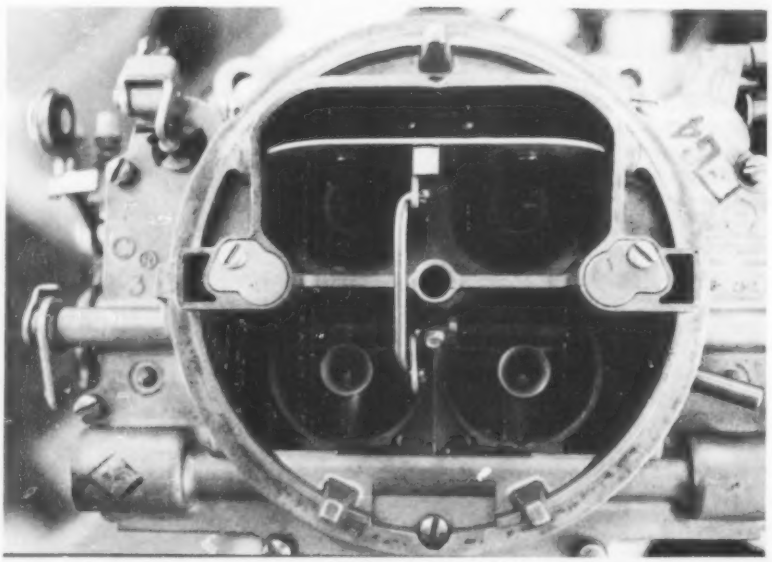
Once again, keep the rpms down and the speed moderate.

With all these catches to performance driving, you might think it's not worth the effort, but performance is more than simple power generated by the engine. It also means the handling of the car. A car that handles better will hold the road better in all situations, and is therefore a safer automobile. That seems to be the only way to have performance without all the catches.

Our thanks to Phil Braybrooks and Paul Rogers of J&M Speed Centers in Riverside and San Bernardino, Calif. for help with the photos for this article.

(right)
Stiffer shock absorbers provide a firmer ride with more road feel, and also more safety.

(below)
Spoilers and air dams, whether stock or after-market items, hold the car to the road, improving performance and safety at the same time.



With the secondaries open you can imagine how much more fuel is sucked through this four-barrel caburetor.

ELIMINATING GLARE

Inside rearview mirrors have always been compromises at night. If another vehicle is following you, the day setting is too bright; if another vehicle isn't following you, the night setting is too dark.

For more than 40 years manufacturers have been trying to solve this problem. Now two Ford Motor Company suppliers appear to have successfully developed an automatic dimming day/night mirror. Donnelly Mirrors, Inc., of Holland, Mich., combined over 75 years of mirror manufacturing with the high tech electronics expertise of Gentex Corp., of Zeeland, Mich., to bring this mirror to the public.

The automatic day/night mirror will be available as a factory installed option on the following 1983 models: Lincoln Continental, Mark VI, Lincoln Town Car, Mercury Cougar and Ford Thunderbird.

Two cadmium sulfide light sensing photocells provide the input to the mirror's electronic circuit which contains an integrated circuit. One photocell is aimed to the rear to detect glare from following headlamps at night. The other photocell is aimed through the front windshield to detect the light the driver normally sees.

The forward light that strikes the driver's eyes determines how the eyes adapt to rear glare. The more average light seen by a driver, the more light it will take to cause glare discomfort from the rear. Glare is a "relative" condition. Glare tolerance is also related to age. An older person generally has less tolerance to glare, since the eye is less adaptive with age.

Suppose a nighttime driver is proceeding from a dark rural road onto brightly lit city streets. The forward photocell detects more light and the circuitry automatically desensitizes the mirror. It will automatically take more light in the city to trip the mirror from the normal day position to the non-glare position.

During the day the photocell that is aimed out the front windshield detects considerable light. A threshold on this forward sensor prevents the mirror from operating during the day. The mirror automatically becomes alert at night.

When glare is sensed by the rear photocell, the mirror moves rapidly to the low reflectance position. The image from the day mirror is 20 times brighter than the image from the night setting.

A short time delay (about nine seconds) prevents the mirror from immediately returning from the non-glare position to the normal day position. The purpose of the delay is to lessen unnecessary movements in busy traffic.

A miniature control panel extends off the bottom of the mirror housing. On the control panel is a lighted selector dial that lets each driver select the particular glare sensitivity desired.

Also on the control panel is a small green LED that lights whenever the mirror is in the low reflectance night position. A two-position "Auto-Off" switch on the panel allows either automatic operation or deenergizes the mirror in whichever position the driver desires.

Drivers of different height require different mirror positions in order to see clearly out the rear window. The initial aiming of the mirror works the same as with present manual rearview mirrors.

In normal operation the driver doesn't need to use the "Auto-Off" switch because the mirror panel is wired through the ignition switch. The mirror is also wired into the car's backup lights. Whenever the auto is shifted into reverse, the mirror will hold in the normal day position, regardless of glare. This provides the driver maximum mirror visibility when backing.

WINNING attitude

Most of us have an attitude problem when driving somebody else's car. We just aren't as cautious with their car as we would be with ours. It doesn't seem to matter who we are or whose car we are driving; we aren't as careful.

If we are driving a friend's car — no matter how intimate that friend might be — something always happens to strain the relationship. That something could be anything from a spilled soft drink through paint scratches to major fender benders.

Don't start protesting, "That ain't the way it is! I'm more careful with other people's cars!" We know all that. We *all* like to think we are more careful with the property of others. We honestly believe that we *are* more careful. But the facts just don't support the idea.

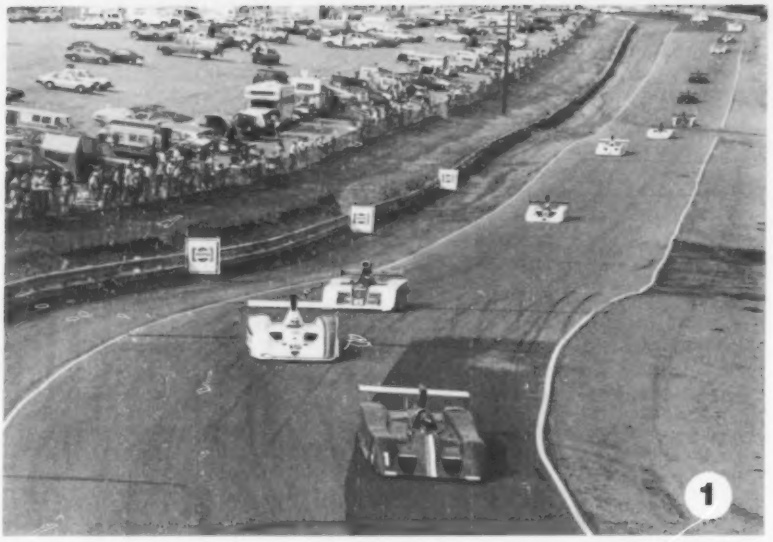
For example, when we drive "company" cars. In the case of U.S. Air Force government vehicles there have already been 361 accidents this year resulting in $1,415,209 worth of damages.

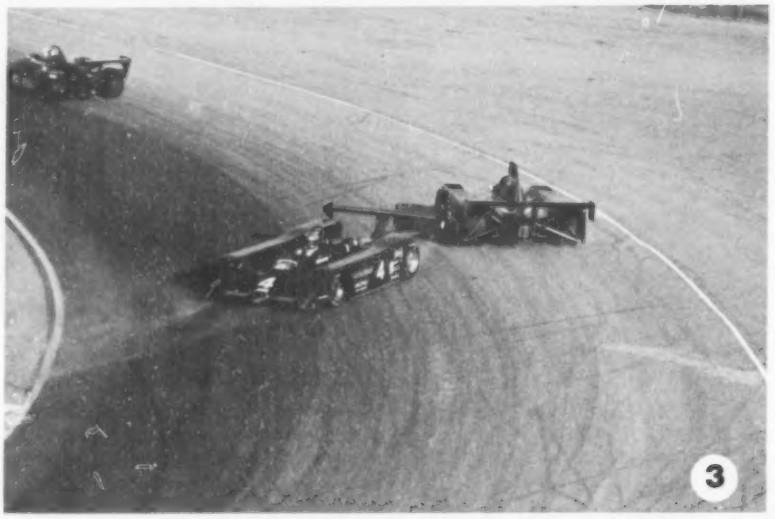
On the other hand we could all learn from race car driver Al Holbert's attitude. This veteran of 12 racing seasons has usually piloted his own racing cars — cars that took him to the 1976 and 1977 IMSA GT titles. In his own cars he has also won the granddaddy of Can-Am races, the Riverside, Calif., event, twice in 1980 and 1981.

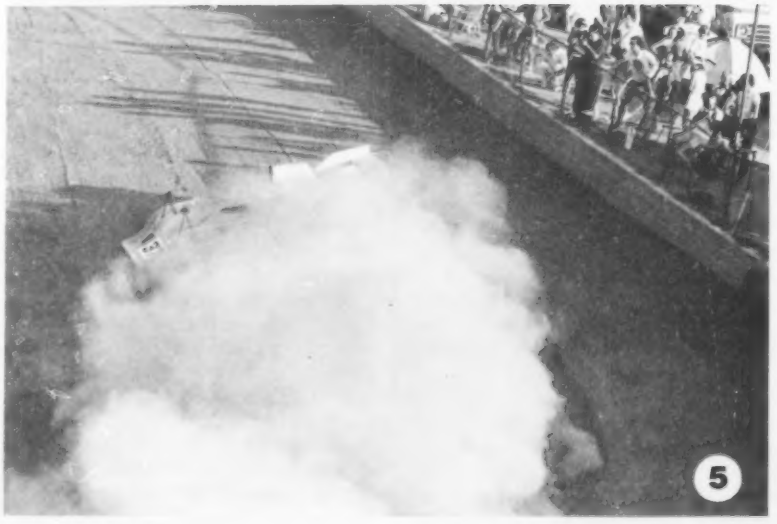
Likewise, Holbert won this year's Riverside Budweiser/7-ELEVEN Challenge Cup race. But he wasn't driving his own car; he was piloting one owned by Count Rudy von der Strasten.

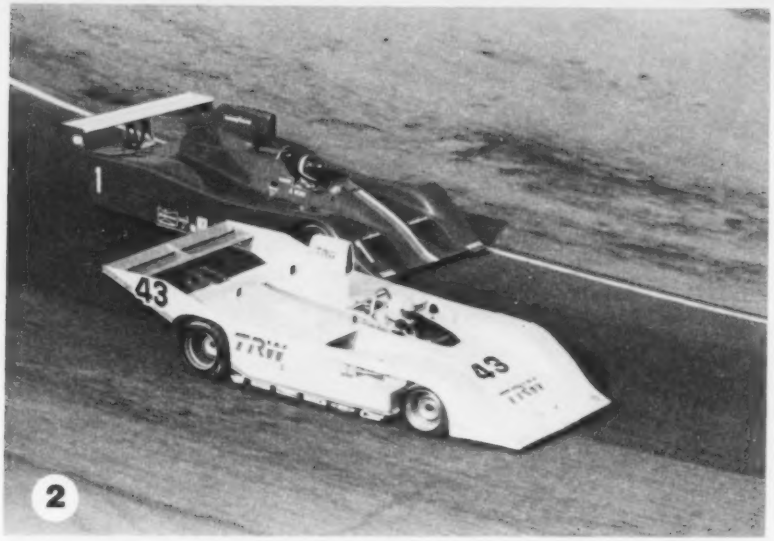
"When I'm in my own cars," Holbert related, "I'm extra careful, especially in traffic. You have to be when you pay your own bills."

This attitude paid off for Holbert in the 1980 Riverside race (see February 1981 DRIVER). He kept a safe distance between himself in third place









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Lap one of the Meguiar's Can-Am at Riverside and Al Holbert leads Al Unser Jr., Danny Sullivan, John Morton, Geoff Brabham, Randy Lewis and the field. After 60 laps of shuffling, Holbert had led every lap and Brabham had displaced Morton.

2

Holbert only had six laps of open track before he was into lapping traffic. "I have not gotten through traffic as quickly and as smoothly as Unser and Sullivan have this year," he said. "Maybe that's a carryover from the days when I still owned the car."

O-O-OOPS!

There were no injuries on the race track during the Meguiar's Grand Prix Weekend at Riverside International Raceway, but one mechanic broke his ankle in the pits before the race. Andy Bernstein stole a kiss from one of the sponsor's many race queens. To celebrate he jumped over a tool box while clicking his heels — only to slip in some spilled oil.

4

3-4-5-6

Swing your partner, dos-à-dos, promenade all . . . John Graham (#4), Joe Castellano (#73), Horst Kroll (#37) and Mike Allen (#59) didn't have race days as easy as Holbert's. But they escaped injury.

6

and the front running pair. The front runners were Geoff Brabham, who would go on to win the 1981 Can-Am crown, and Keke Rosberg, who has just become the 1982 World Driving Champion. They were each driving for other people. Holbert owned his own car.

If you don't remember, or haven't guessed already, Keke and Geoff had a big coming-together which handed the win to Al.

And what's Holbert's winning attitude when he's driving for somebody else that sets him apart? "I have a hard time forgetting it isn't my car," he said.

If we all thought of every vehicle we drove as being our own, there'd probably be a lot fewer accidents.

New Year's DRIVING Resolutions

You've probably made promises to yourself at the New Year before, like to quit smoking, or to work harder, or even to be kinder to a relative you especially dislike. You remember past resolutions worked better if you wrote them down.

Here's a list of "New Year's Driving Resolutions" to get you started toward a safer driving year in 1983. Add your own to the list and keep it in the glove compartment. Then look at it every month or so, to judge how well you're living up to them.

"In 1983, I resolve:

■ To use my seatbelts at all times — even if I'm only backing the car up a couple of feet.

■ To watch at least a block ahead to see what the traffic is doing so I'll be prepared in case of emergencies.

■ To hold my speed down to a point no higher than what's posted on the speed limit signs — or even less if the roads are slick.

■ To stay back from cars in front of me, so I don't end up in their trunks if they stop quickly.

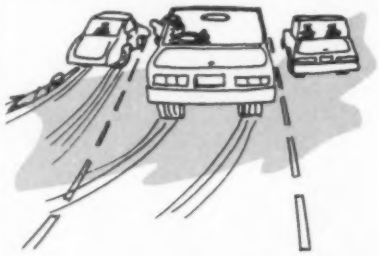
■ To keep my children in car seats or in safety belts any time they are in the car — and never to hold them on my lap or to let them stand on the seats.

■ To keep the car clear of things that will block my vision in any direction — including packages, window stickers, or things hanging from the rear-view mirror.

■ To carry only as many passengers as I have seatbelts for.

■ To drive in the center of my lane of traffic so those on either side don't get nervous by being too close to my car.

■ To practice *smooth* driving — smooth acceleration, smooth braking, smooth turns — as if I had a glass of milk sitting on the floor mat that I didn't want to spill.



■ To move out of the left freeway lane to allow faster traffic to go past, even if I'm doing the speed limit and they are speeding.

■ To use my turn signals whenever I turn, or change lanes, or even leave a curbside parking space, so even a dummy could understand what I'm planning to do.

■ To stay *out* of the car when I've been drinking.

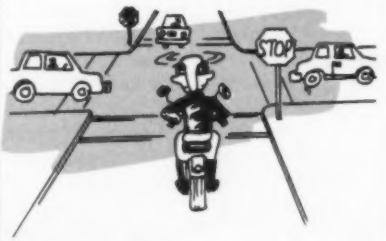
■ To watch for pedestrians, animals and road hazards at all times, knowing that they will appear suddenly and won't be watching for me.

■ To stop driving when I'm tired on long trips.

■ To drive with both my hands on the wheel, my eyes on the road and my mind on the driving only."

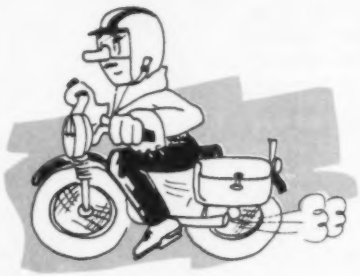
We haven't forgoten the motorcyclists. Here are some New Year's resolutions for them.

"In 1983, I resolve:



■ To treat intersections like mine fields, knowing that more cyclists are injured or killed at intersections than at any other place.

■ To wear my helmet whenever I ride my bike (not just on base, but *everywhere*) and to keep the chin strap fastened.



■ To ride like an adult and leave speeding and showing off to those with a death wish.

■ To make my bike as conspicuous as possible by using the headlight at all times, and to make myself as conspicuous as possible by wearing colorful, reflective clothing.

■ To practice looking for escape routes from any tight spot, expecting some car to get in my way, as they often do.

■ To ride only when I'm sober, rested, and feeling responsible." ⊕

DIS-BARRED

These are wear bars. When they appear in two tread grooves next to each other, they signal it's time to replace the tire. The tread is now too far gone for safe handling. And what is more, the tire is now illegal. Take a look at your tires to see if the wear bars have shown up yet.

And take a look at next month's DRIVER for a full examination of tires, those all-important connections with the road.

SEAT BELTS: TWO PERSONAL VIEWS

A HEAD-ON LOOK AT SEATBELTS

By Captain Ellis Sharadin
3AF/DOO, APO N.Y. 09127

Now, I'd be the first to admit to an involuntary shudder or two at the thought of a head-on collision. It's one of those little nightmares that you keep tucked away in the back of your mind because surviving one of those accidents seems incomprehensible. Besides, you tell yourself, if it ever happens to you, it just wasn't your day, right?

Anyhow, being a flyer, I feel I have to start my story in a flyer's manner, so here goes. . . . There I was, riding shotgun in a friend's car. It was 2130 on a rainy evening, 12 October, and we were on the return trip to RAF Mildenhall from a conference with our British counterparts near London. Following our RAF host's instructions, we had entered a narrow, tree-covered lane connecting us with our planned route home.

After proceeding a distance of about two blocks down this lane, we spotted what appeared to be a turnoff to a side road on the left, marked only with a small lane divider and blue arrow sign for the turn. Ahead, we could see two approaching cars, going the opposite direction on our street. However, as we passed abreast of the turnoff sign at about 25 mph, we came to the sickening realization that: (1) We were at the end of the lane, (2) We were about to enter onto a main road, which was aligned with our entry street but curved around to the left in front of us, and (3) The approaching traffic was entering the curve, so a head-on collision was imminent. With a cry of "Oh Sierra!" (or a close approximation), my nightmare became an abrupt reality.

Or at least, part of it did. You see, we certainly came to a sudden halt. And the crash was a loud, frightening one. And now two cars are totally wrecked, but . . . the other half of my nightmare never fully materialized. No one was killed or maimed. In fact, my driver had the worst injury — a broken hand. The other driver suffered a small cut on his forehead and one on his knee. I got the wind knocked out of me, and a bruised rib or two. But we were all, happily, ALIVE.

You know every fighter pilot is taught that, even though the odds are stacked against him, he can still find success by exploiting those areas in which he has an advantage. Well, it doesn't take a rocket scientist to figure out that we three accident victims had an advantage of our own — we were all wearing seatbelts. Now that's an advantage I can LIVE with, can't you?

WHAT'S YOUR EXCUSE? (For Not Wearing Seatbelts)

By Captian Edward D. Liebenguth
3750th TCHTG Gp/TTKMM
Sheppard AFB, TX

No, I'm not talking about the same old excuses. You know the ones. They're too uncomfortable or they're a hassle to put on. I've heard all of those plenty of times before. What I'm after are the real reasons why you don't buckle up. What is it, deep down inside, that causes you personally not to wear seatbelts? Well, while you are thinking that over, let me tell you why I never used to wear mine.

When I first joined the Air Force, I was a young officer with my entire life ahead of me. I was sitting at the top of the world and, as far as I was concerned, pretty near invulnerable. I had too much to live for to even consider the possibility of getting killed. Buckling on a seatbelt would jinx myself by wearing them. And, of course, it would have detracted from this macho image that I was trying to live up to. Wearing seatbelts would be like saying that I was afraid of something. Besides, we all like to think of ourselves as good drivers. And we all know that good drivers don't have accidents. Right?

Well, I went right on thinking that way until one day when I was home on leave in St. Louis. I had been downtown visiting some old friends and was driving home on the expressway, when a drunk driver ran me off the road. I lost control of the car and slammed into a fire hydrant. I still have a scar to show where my head bounced off the steering wheel. But I was lucky. At least I survived. Only chance and the fact that I was driving my father's land yacht prevented more serious injuries. While waiting in the hospital emergency room, I thought about that. Maybe I wasn't so indestructible after all. The next time I got into my car, I buckled up.

So for all you young guys and gals out there who may be worried about how you'll look wearing seatbelts, let me say this: Take a moment to consider how you might wind up looking if you aren't wearing them the one time they are really needed. Believe me, there is nothing "chicken" about safety.

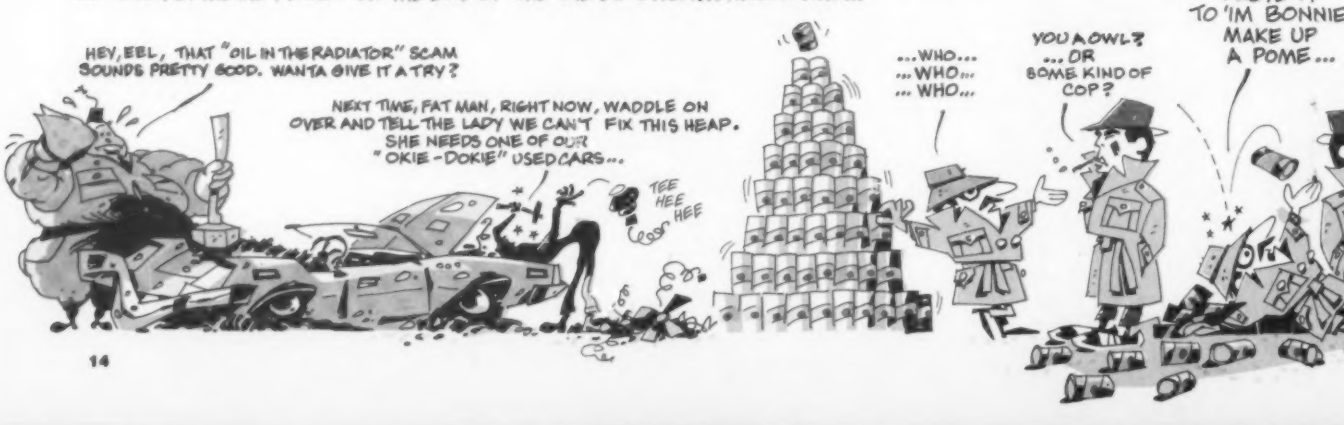
Now tell me. Just what is your excuse?

OK, SWEETHEART, I KNOW YOU'RE BUSY SO I'LL MAKE IT SHORT. THE WHOLE MESS HAPPENED AT MY GAS STATION OUT IN THE CRUMMY DESERT. IT HAPPENED TO ME AND THE FAT MAN, THE EEL AND TO SHAM, THE PIANO PLAYER AT MY CRUMMY GAS STATION. OH, YEAH, "OLD A.H." THE TOW TRUCK DRIVER, WAS IN ON IT TOO. THAT'S RIGHT, SWEETHEART, IT HAPPENED TO ALL OF THE ABOVE... AND THEN SOME... AT THAT DREARY DUMP IN THE DESERT I CALLED:

GASABLANCA
GAS
PLAY IT AGAIN, SHAM...
I FORGOT HOW IT GOES. ...AND THE NAME IS "SAM"
YOU FORGOT "THISH", SHAM? THAT LOVELY SONG I DIG SO GOOD? THAT LOVELY SONG CALLED "THISH"? YOU FORGOT HOW IT GOES?
YEAH. FORGOT.

NO PICTURES! NO PICTURES!
...THAT'S 100 SMACKEROOS FOR THE TOW LADY...
A HUNDRED SMACKEROOS? YOU'RE A THIEF, YOU THIEF!
RICK?!
LONG TIME NO SEE, SWEETHEART. NOT SINCE THAT TIME IN NOME. ... WHEN WE WUZ DOIN' AS THE NOMANS DO... WHO'S THE CREEP?
RICK'S GASABLANCA TOWING
WADDLE WADDLE

... WHO BASH AND BREAK THE SPARK PLUGS... WHO SPILL OIL ON THE GROUND BELOW THE ENGINE... THOSE TWO CUTIES WHO WILL PUT A DAB OF DIESEL FUEL IN THE FUEL-TANK WITH THE GASOLINE...
... WHO POUR A LITTLE OIL IN THE RADIATOR...
... WHO, WITH THEIR TRUSTY SCREWDRIVERS, PUNCH THE GASKET ON THE VALVE COVER SO THAT IT LEAKS, **LEAKS, LEAKS**... WHO LOOSEN THE WHEEL LUG NUTS...
... WHO PUT METAL FLAKES ON THE END OF THE OIL DIP STICK... WHO... WHO...


HEY, EEL, THAT "OIL IN THE RADIATOR" SCAM SOUNDS PRETTY GOOD. WANTA GIVE IT A TRY?
NEXT TIME, FAT MAN, RIGHT NOW, WADDLE ON OVER AND TELL THE LADY WE CAN'T FIX THIS HEAP. SHE NEEDS ONE OF OUR "OKIE-DOKIE" USED CARS...
TEE HEE HEE
...WHO... ...WHO... ...WHO...
YOU A OWL? ...OR SOME KIND OF COP?
COP? COP? I AM BONNIE AND CLY MAN, AND I WANT IN ON THIS RACKE PROVE IT TO 'IM BONNIE MAKE UP A POME...

HEY, BOSS, HERE COMES "OLD A.H." WITH A NEW MARK... ...ER, A NEW CUSTOMER, I MEAN...
TEE HEE
YEAH, EEL, I SHEE 'IM. YOU AND FAT MAN TAKE CARE OF IT. BY THE WAY, WHERE ISH FAT MAN?
YOU'RE SITTIN' ON HIM...
TEE HEE HEE
OH... YEAH... I THOUGHT HE WAS A BEAN-BAG CHAIR...
BUT SHAM, YOU MUST REMEMBER "THISH"
AW, SHADDUP
"... A QUICHE IS JUST A QUICHE..."
TRA LA TRA LA TRA LA
SLITHER OOZE
SLITHER SLITHER
I AM LYDE CLUESO-SO, BUSTER, D I SEARCH FOR E VILLIAN, THE CHEAT, FRAUD WHO CHARGES SMACKEROOS FOR A $15 TOW... R SEE THIS TURKEY?
♪ RICK, I NEED 100 SMACKEROOS TO PAY FOR A $15 TOW... ...DO YOU THINK...?
LOOKS LIKE A YOUNG "OLD A.H."
NOT A CHANCE, SWEETHEART
I SEARCH FOR THE FAT MAN AND THE EEL, TWO RASCALS WHO PUNCTURE THE TIRES WITH THE SCREWDRIVER...WHO CUT THE FAN BELTS AND WHO THEN SELL THE MOTORIST AN OVER-PRICED REPLACEMENT...
...WHO PUNCH HOLES IN THE RADIATOR AND CUT THE RADIATOR HOSES ... WHO SPRAY OIL ON THE OUTSIDE OF THE SHOCK ABSORBERS...
NO PICTURES!
MERCY-ME! THOSE DESERT ROADS HAVE RUINED THESE TARS! THE LITTLE LADY NEEDS A NEW SET ALL THE WAY 'ROUND...
SNIP SNIP
TCH! THE FAN BELT'S GONE TOO!
TEE HEE
PATTZ
OP?
CLYDE,
NT IN CKET! IT NNIE! UP E...
BONNIE AND CLYDE, BONNIE AND CLYDE, WHEN THE FUZZ GO SEEKIN' WE GO HIDE...
...CONVINCED?
YEAH, SWEETHEART, I'M CONVINCED AND YOU'RE ALL UNDER ARREST! I'M FEDERAL UNDER-COVER OFFICER ELLIOT RICK!
COOL IT RICK! THIS IS MY BUST! I'M STATE UNDERCOVER OFFICER ELLIOT FAT AND YOU'RE ALL UNDER ARREST!
HANDS UP! TEE HEE! I'M COUNTY UNDERCOVER DEPUTY SHERIFF ELLIOT EEL AND, TEE HEE HEE, YOU'RE ALL UNDER ARREST!
CASABLANCA
GOL-LY, BONNIE! A 19 AND 34 FORD! NOW WE CAN GO BACK TO TEXAS AND ROB BANKS! JUST LIKE THE OLDEN DAYS!
TEXAS HAS A BUNCH OF BANKS AND WE ARE GONNA FLEECE 'EM WHEN THE COPS COME AFTER US WE'RE ALSO GONNA FLEE SOME...
KELLEHER
SHAM? HE STILL CAN'T REMEMBER "THISH"
"OLD A.H."? HE WAS LAST SEEN GOOSE-STEPPING SOUTH SHOUTING: "NO PICTURES! NO PICTURES!"

Dear DRIVER Magazine Reader;

As Christmas approaches I thought I'd make a list of tricks I've used in the past few winters to cope with snow. Emigration notwithstanding, as a snow-country driver you should consider: Preparing your car; Preparing your parking place; Preparing to leave your parking place; Getting an overview; Being familiar with your car, and watching out for slick spots.

Prepare your car as if you were going on a long trip. On-the-spot maintenance will be very difficult in snowy weather so a major tune-up should be considered. Lubrication and adjustment of the choke and carburetor go along with replacement of fuel, air and oil filters. Spark plugs can be cleaned and re-gapped. Brakes, shock absorbers and tires should be checked for wear/replacement.

Prepare your car by looking at minor things such as turn signal bulbs, reflectors and mirrors.

Prepare your car by lubricating oddball items such as hood latches and hinges, trunk and door locks. Locks on older cars can accumulate dirt which holds moisture and freezes into ice. Commercial lock lubricants can be sprayed into the lock opening. Spillage is inevitable but can be wiped up easily.

Prepare your car as an investment against being stranded. A reliable car takes a lot of strain out of winter.

Prepare your parking place both at home and at work. Take a hard look at the ordinary. If a slight skid will put you in the boonies, look for an alternate.

Try to park in a well-drained, lighted area. A garage is perfect, but if one isn't available check the most frequently plowed areas. Carpools get priority in some parking lots.

Prepare your parking place by using ingenuity. In some suburbs a church or store will not use all of their parking lot(s) all night. If you park late and leave early you may not be an inconvenience. Be sure that police will not ticket or tow your car from a private lot.

Prepare to leave your parking place by walking around your car. Look for flat tires. Loosen any accumulated ice or snow from the wheel wells.

Make sure that all tires can move without obstruction.

Brush snow/ice away from brake lights, outside rear-view mirrors and defroster intake vents.

In some cars defrosters can create a fountain of fog or frost until the system becomes free of moisture. This is bad news on an expressway. Scrape ice and snow from all windows.

These tactics will allow you to see other drivers and give them the chance to see you. Carpool passengers might be willing to share these tasks. Snow is dirty so even a clear window should be cleaned if the weather permits.

Prepare to leave your parking place by using D2 or D1 automatic transmission ranges or second gear of a manual transmission to leave a parking place when snow poses a threat to traction. Carpool riders can give you additional traction or a push if you really need it.

Get an overview of the street. A two-lane street can be regarded as having two driving lanes and two parking lanes. The primary surface may be covered with packed snow. It may be plowed, cindered or treated with chemicals. Can you stop in a straight line? Is surface treatment the same for all of your regular route?

Alternate routes can relieve you of the traffic jams common in heavy storms. Alternate routes may include detours down lightly travelled side streets or even through an alley. These may be cluttered with badly parked cars, unplowed snow or kids at play. The gain is realized by freedom from stop-and-go traffic, not from speed.

Get an overview of how your regular route is marked. Does a lighting display or other advertising create confusion? Be aware of these foolers.

Get an overview of your own driving habits. Does your car become part of a convoy which averages high speed over a regular route? Do the cars in front of you and behind you have room to stop safely? If they can't, your car may be sandwiched in a chain collision.

Do you love to drive through corners in a graceful four-wheel drift?

Police *love* to ticket drivers who call attention to themselves.

Do you use turn signals? Other drivers appreciate them. Be sure they cancel automatically.

Get an overview of how time is used. Tight schedules may be impractical in bad weather. Carry a shopping list and a little spare cash so you can drop out of traffic jams to buy needed articles. This is not as frivolous as it seems — there's no point in making a second trip in a snowstorm.

Be familiar with your car and any special equipment carried on or in it. Some cars are too small to carry everything everyone recommends, so look for substitutes that you, as an individual, can use.

If you don't feel your car can accommodate sandbags or tree-trunks, try a few plastic jugs full of dry sand. Plastic jugs pack easier and keep dry sand dry. Burlap bags leak, let moisture in and will thereby let your sand become one large lump.

Kitty litter should be fresh. Sand or kitty litter are not the only choices for grit. In an emergency, soap powder can give your car traction on ice. If your car is parked on glare ice and a stiff wind blows grit away as fast as you throw it down, put the grit on top of the tire under the fender. Normal tire-spin will carry it under the rubber.

Be familiar with your car so that if you can't use normal traction aids like sandbags, you can put empty garbage bags in your car. When you need extra weight, stuff a bag with the heaviest substance around — snow. After you get out of the snow the bag can be emptied.

If your car has a roof rack you may not need a bag. Just roll up a large snowball like a part of a snowman and load it on the roof. Several balls can be as useful as a bag of sand. Unload the roof after your car is free of deep snow.

Be familiar with your car so that you can use a garden trowel to chip ice from under the curve of a tire. It may be better for your back than a shovel.

Be familiar with your car so you can carry a sponge in the passenger compartment. It is used to remove

water (melted snow) from the floormats before it freezes. This is an after-parking chore that keeps the ice away from pedals.

Be familiar with your car and add a traction aid for the smooth base-plate of the jack. This can be a carpet remnant or a broken board from a friendly karate expert.

Be familiar with your car and carry extra reflectors in case your car slides into an awkward parking position. Any cheap reflector(s) will do.

Be familiar with your car so you don't become emotionally involved with a stuck car. A racing engine can pack snow around your car's tires and a racing pulse can give you heart failure. A calm analysis of problems usually solves them.

Watch out for slick spots while approaching stop intersections. If a street has packed snow too slick to stop safely, look in the parking lane — it may be unplowed snow which will allow you to stop if you steer into it.

These tricks may not be the complete answer to every problem but they can solve a few of the anxious ones. And, because anxious problems have a way of snowballing into major ones, wear your seat belts.

Sincerely,

William D. Southers
Rock Island Arsenal, IL 61201

EYE PROTECTION FOR MOTORCYCLISTS

The standard for eye protection devices for motorcyclists is defined in AFR 127-7 as shatterproof eyeglasses, goggles, or face shield attached to the helmet. It has come to our attention that some Exchanges are selling face shields which are stamped "not warranted shatterproof."

When you buy protective equipment of any kind, read all labels and tags carefully. Be certain you are getting the best available for your money.

D.I.Y.

Detroit's developing a new approach on do-it-yourself service that will show up on future cars. There are two sides to the idea: one that will make it easier for do-it-yourselfers, another that will make self-service more difficult. Simple, routine jobs such as changing oil, filters, plugs and aligning headlights will become easier.

This will be accomplished by redesigning and positioning of parts, eliminating need for special service tools and simplifying procedures. At the same time, other jobs will be made more difficult to discourage self-service. Reason for this is carmakers do not want owners to undertake jobs where there's possibility for error — using the wrong part, installing it wrong or where repair/replacement involves disconnecting or removing other components. On those jobs, factories would prefer that work be done by professional mechanics. Detroit looks for d-i-y (do-it-yourself) to continue to grow in terms of numbers of motorists doing their own work, but not in types of jobs. (The California Highway Patrolman)

IS YOUR MUFFLER TRYING TO TELL YOU SOMETHING

Turning up your car radio is no way to cure a loud muffler. But listening for unusual sounds coming from underneath your vehicle can help prevent serious and expensive repairs, advises Car Care Council.

Rusty, corroded muffler connections usually start as small perforations and develop into larger holes until the connection simply breaks off. That moment is easily identified when you hear a loud, roaring noise.

Exhaust systems also become clogged due to internal parts in the muffler breaking loose and restricting the flow of exhaust gases. A pinched or bent pipe can also cause restrictions which can lead to engine overheating and power loss. Because of extreme heat, mufflers and tailpipes can deteriorate quickly and are usually replaced at the same time by repair shops.

An efficient exhaust system not only keeps your car quiet, but is also safer and can save you money in the long run. A restricted exhaust can cause poor performance and sacrifice fuel efficiency. A noisy exhaust system not only is a public nuisance but can allow poisonous fumes to seep into your car. Listen to your car's exhaust . . . it may be trying to tell you something.

LOWER INSURANCE RATES

The Michigan AAA has announced reduced premiums on 20 1983 cars produced in the U.S. because its study projected that these cars were significantly easier to repair and less susceptible to theft than others. It increased premiums on 14 cars, 10 of which were foreign. "Overall, U.S. auto manufacturers have done a better job of building theft-resistant, easy-to-repair cars than foreign manufacturers," AAA said.

BUY DIESEL FUEL WITH CARE

Owners of diesel cars should be careful when buying fuel at truck stops. The fuel may be a few pennies cheaper, but could end up being costly. Many pumps at truck stops lack filters needed to get fuel quality up to passenger-car standards. Big trucks can handle the unfiltered fuel but cars can't. (Automotive Information Council)

1979-1981 Passenger Cars With the Worst Injury Loss Experience
Relative Injury Claim Frequencies -
Personal Injury Protection Coverages

Make and Series	Exposure	Relative Claim Frequencies By Size of Claim			
		All	>$250	>$500	>$1,000
Dodge Challenger	6,031	160			
Plymouth Sapporo	5,850	148			
Datsun 200 SX**	29,153	141	136	140	156
Toyota Corolla-2 Dr *	15,558	138	139	133	
Datsun 210-2 Dr	47,399	136	137	145	145
Toyota Corolla Tercel-2 Dr **	35,861	134	128	126	134
Dodge Omni-2 Dr	41,864	134	123	122	120
Plymouth Champ	27,226	132	132	123	125
Honda Civic-2 Dr	95,422	131	133	133	131
Toyota Celica Supra	13,229	129	135		
Dodge Colt	29,944	124	127	127	133
Honda Prelude	30,341	122	125	135	137
Buick Electra-2 Dr	16,288	121	135	145	
Mazda RX-7	39,108	121	131	130	134

*1981 models only
**1980 and 1981 models only

From Highway Loss Data Institute

STONE-BLIND

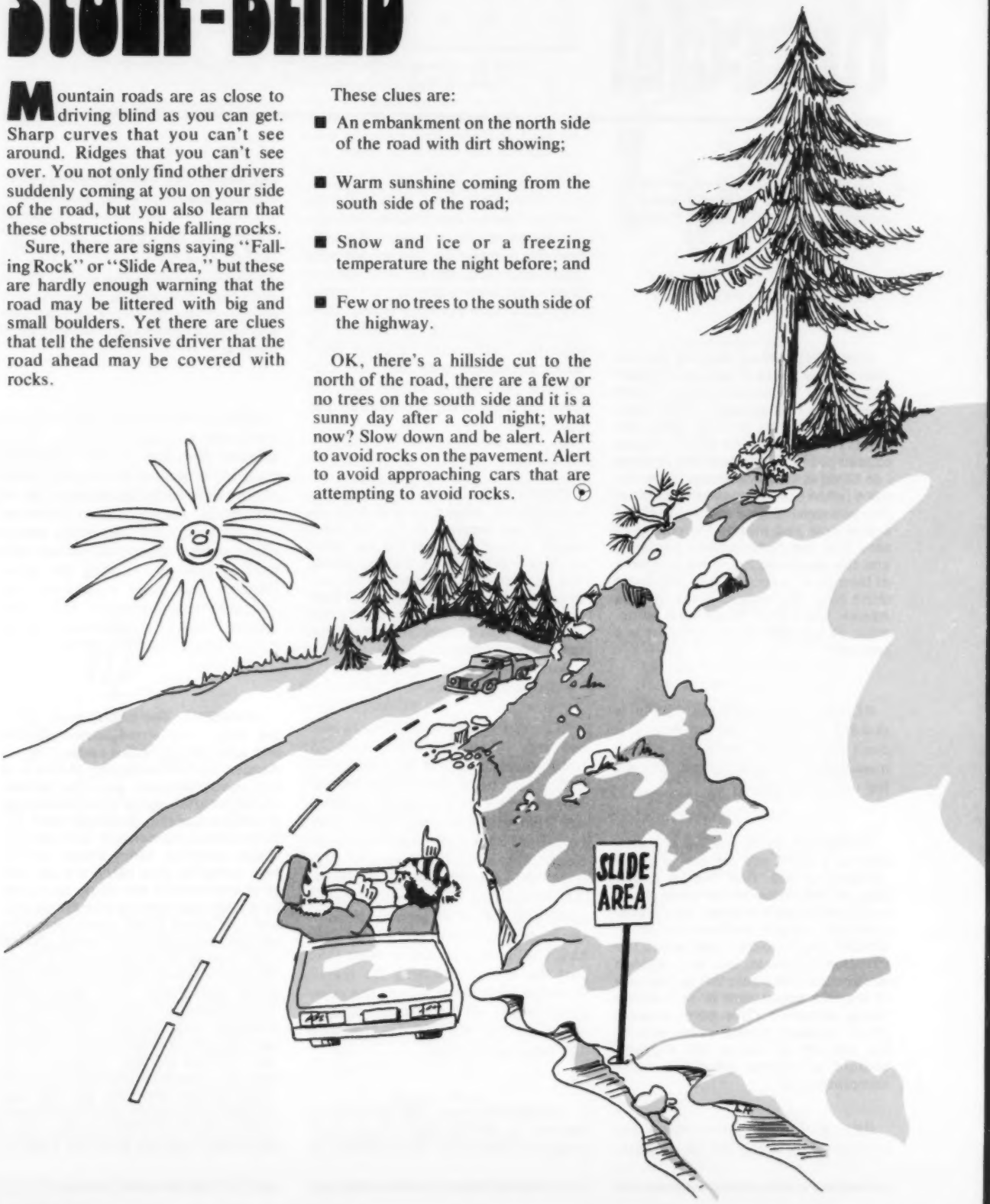
Mountain roads are as close to driving blind as you can get. Sharp curves that you can't see around. Ridges that you can't see over. You not only find other drivers suddenly coming at you on your side of the road, but you also learn that these obstructions hide falling rocks.

Sure, there are signs saying "Falling Rock" or "Slide Area," but these are hardly enough warning that the road may be littered with big and small boulders. Yet there are clues that tell the defensive driver that the road ahead may be covered with rocks.

These clues are:

- An embankment on the north side of the road with dirt showing;
- Warm sunshine coming from the south side of the road;
- Snow and ice or a freezing temperature the night before; and
- Few or no trees to the south side of the highway.

OK, there's a hillside cut to the north of the road, there are a few or no trees on the south side and it is a sunny day after a cold night; what now? Slow down and be alert. Alert to avoid rocks on the pavement. Alert to avoid approaching cars that are attempting to avoid rocks.



tteecc!h!h

double tech with tsgt ron lathrop

COMMENT: I have two problems with my car at this time and I need your expertise. It is a 10-year-old compact.

REPLY: One at a time, please.

COMMENT: When starting the car after several hours of non-use (especially early in the morning or on a cold evening) the car leaves a black sooty substance on the ground below the exhaust pipe. My friend says it may be excess gas being burned, and at times I do fill up at those "discount" gas stations (when I cannot avoid them). What do you suspect? I had a valve job about a year ago; can this be the source? I also had the compression checked, and the mechanic found no problems of blow-by or a second ring problem. I don't have any excess black or blue smoke, and I don't know what to do. What do you think it is, and what is a remedy?

REPLY: Your automatic choke is making the engine run too rich. If it can't be adjusted correctly, it may need repair or replacement. What's the second problem?

COMMENT: While waiting at a stop sign or a light, my car has a slight vibration at idle. Can this be piston slap, or the effects of the valve job or worn out engine mounts (the transmission people looked for worn mounts, but couldn't find any). The vibration is minute, but its existence does irritate me. Could this be because of my idle adjustment or is it something serious? (The compression check showed normal compression, but was off by one or two degrees. Should all valves have the same compression?)

REPLY: I don't understand the compression being off in degrees. Compression is measured in pounds per square inch. Less than a 20 percent variation is acceptable. And, although valves have a lot to do with compression checks, you are actually measuring the compression of the cylinder. As to the vibration, it is more than likely your curb idle speed is too low or there may be fuel leaking inside the carburetor. Either way, when combined with the first carburetor problem it sounds like it's time to look into overhauling the carb.

COMMENT: My year-old, front-wheel-drive economy car has an intermittent tapping in the left front wheel, occurring when the car turns corners or drives straight at low speed. The mechanic says there is no evidence of worn metal in the wheel well. He says he tried stapling/gluing the "floating" disk brakes, but this did not solve the problem.

REPLY: I'd start with front wheel bearings — an expensive item on front-wheel-drives. If the bearing is bad, it may be an electrical problem. No, I haven't gone crazy. Low mileage front wheel bearing failures may be caused by a poor engine-to-frame electrical ground, which causes electrical arcing of the wheel bearings. After replacing the wheel bearings, clean and tighten all ground straps in the engine compartment. Other than that you'll have to look at more than just the wheel well area for metal-to-metal contacting. Check the complete length of the steering system including the steering box and also the entire drive train.

COMMENT: Your August 1982 response to the question about outer edge tire wear on a 1967 full-size car with radial tires missed a point worth consideration. Most 1967 automobiles did not come equipped with radial tires. The alignment specifications were for bias ply tires. The toe-in setting would need to be reduced for radial ply tires to maximize tire life. Some alignment manuals specify two sets of alignment specifications for cars with and without radial tires. It is worth looking into.

REPLY: You're right; however, too much toe-in causes a visual, or feelable, trailing flap on the rubber at each tread groove area. Such wear patterns are called feathered edge or saw-tooth. Feeling sharp edges as you run your hand toward the center of the vehicle means the wheel isn't toed in enough. Feeling the same thing as you move your hand out indicates too much toe-in. As I said in August, worn outer edges are caused by too much positive camber.

COMMENT: The last August "Double Tech" concerned blinking lights and what might be the cause. I experienced a problem similar to that in a van about two years ago. The owners of the car had done some extensive electrical rewiring complete with between-the-seats console with several dozen switches, fancy stereo set up, twin batteries (one being a truck battery) and most of the wiring was done by a buddy using solid core house wire and just about every circuit going directly to the battery. After some driving they started to experience the blinking-lights effect with the alternator gauge going nuts. They spent many dollars having it trouble-shot and parts replaced, even going to the extent of replacing the alternator with a 100-amp unit. Still no change. Someone even told them that the truck battery was too heavy for the alternator and that was causing the problem. Since we all were in the same van club together, and a friend and I had two of the most exten-

sively rewired vans, they came to us for help. After putting two heads together on the problem, we informed them that their problem was minor. We spent the day cleaning off battery terminals, eliminating the number of wires that came off of the two batteries, installing #6 copper stranded wire to a terminal box within the passenger compartment, switching the solid core for stranded core, and soldering or using the proper terminals on all wire ends. To this day the problem has not resurfaced.

The problem was simple to fix. Most of it was caused by corrosion on the battery posts and about two dozen individual wires stuck in and around the terminals on the batteries. It will never cease to amaze me the number of shops around the country that would rather replace parts then fix the obvious.

REPLY: Thanks. If more people would talk with club members or ask the "old pro" in the auto hobby shop, I could spend more time on D-A-P (drive, approach and putt . . . I haven't seen my clubs since I got this job).

COMMENT: It occurred to me that you may have an interest in a problem that affects me and perhaps many other military personnel. The problem is basically taking a U.S. specification car (running on unleaded gasoline) overseas to an area where unleaded gasoline is unavailable. In my case, I elected to take my 1980 Japanese-built sub-compact to Norway after being assured by my dealer that I would not encounter any problems with dealers, parts or leaded gasoline. I have subsequently learned that European dealers have no responsibility for warranties on my car, spare parts are not available, and (through the Air Force judge advocate general) one can expect major engine damage in certain U.S. specification Japanese autos if operated with leaded gasoline. My inquiries to the American distributor on my car have revealed only that they have no obligation to honor warranties on American specification cars taken overseas. They have yet to answer my request for further information on the reasons for the problem and how to remedy the situation. My dealer has offered his sympathy and stated he has only recently learned of the problem from returning servicemen. This could be a topic for you to investigate on behalf of those of us throughout the military unfortunate enough to face such a problem.

REPLY: As you pointed out, the manufacturer's U.S. representative isn't answering questions regarding the exact nature of the engine problems or remedies. And they probably won't be saying much until the extent of their liability is determined. But this is more because of the number of cars being force-fed leaded regular in the states than any overseas problems. Also, the major engine damage problems were just uncovered, so there's a good chance that your dealer didn't know about them before you shipped the car.

As for asking your dealer about overseas warranties, parts and leaded fuel, you might as well be asking a hang glider what it's like to fly the space shuttle. This is especially true when talking about vehicles that were exported to the United States to begin with. In most cases, the U.S. importer is in effect an independent agent with a franchise — his responsibilities are limited to this country only.

EDITOR'S NOTE: If you have a general interest automotive question that you would like answered, and feel others could use the knowledge also, send it to:

Double Tech
DRIVER Magazine
HQ AFISC/SEDD
Norton AFB, CA 92409

HOW IT HAPPENS!

A driver is leaving the Air Force base on his way to town. As he approaches an intersection, he slows and moves into a left turn lane. The lights ahead are red. Suddenly a young sergeant on a motorcycle on the cross street makes a high-speed right turn and heads directly for the car driver. The car driver slams on his brakes and the motorcyclist, unable to get into his proper lane, continues into the opposing traffic lanes. He goes around the car and then enters his own lane, proceeding on toward the base gates.

Most often, it's the car driver who causes the mishaps with motorcycles. But sometimes the motorcyclist is a little too confident of his abilities and tries something flashy, usually involving too much speed. Watch out for this kind of cyclist.

Most importantly, watch out for traffic around intersections. If you're careful like our driver friend, you'll avoid those who aren't so careful.

ALWAYS HUNGRY

RUST NEVER SLEEPS

Washing and waxing your car throughout the winter is just as important as it is in the spring and summer. Besides making you feel better about your car's appearance, it is very important in helping your vehicle survive the rigors of winter weather.

Rust is the villain. Corrosion can eat away at a car's body and frame until there's nothing left. Which is probably why it's often called "Michigan Cancer," Michigan being one of the snow belt states that's heavy into dumping thousands of tons of salt onto the roads every winter.

Corrosion is an electrochemical process. In this process a conductive solution is called an electrotye, while positive is referred to as the anode and negative as the cathode.

In the case of car bodies and frames, iron ions react with hydroxyl ions from the electrolyte (water) to form rust. As salt increases the conductivity of water, the ions move faster and rust forms quicker when the combination of salt and melted snow is splashed onto the car.

If you can prevent the electrolyte from getting to the metal, you can minimize the rusting. To prevent or slow this process, the engineers are using new materials and design techniques as well as protective materials. And you should be using water, soap, waxes and polishes.

The new materials include single-sided galvanized steel and epoxy coatings such as Zincrometal. As for design, engineers are being extra careful not to create moisture traps in seams, laps, box sections and other areas that are hard to get at for cleaning. And traditionally one of the areas most vulnerable to rust has been wheel wells. Here engineers are installing plastic inner fender lines, preventing dirt and sand from blasting away rust-resistant coatings.

The protective materials referred to earlier are more commonly called "rustproofing." Now, just because your car is undercoated don't think it is rustproofed. When fresh, undercoating is still soft and pliable enough to keep moisture away from metal and thus can prevent rust. However, undercoatings are really sound deadeners, not rustproofers. Eventually they become hard and crack. When this happens, undercoatings are worse than no coating at all. The cracks feed moisture into and under the coating, promoting rust.

The best rustproofing is done by an aftermarket specialist. In addition to spraying the underside of the car or truck with a non-hardening mastic-type coating, they spray inside doors, door jambs, box sections, body panels, etc., with wax-based corrosion-proofing materials. The holes that are drilled for this are filled with plastic plugs.

If you don't trust your local rustproofers or there aren't any professionals in your area, there are do-it-

Road salts that change snow and ice-covered streets to wet mess can eat away at a car until there is nothing left.

yourself kits available. They may not be up to real professional standards, but they are better than none at all. These aerosal can kits consist of two separate materials — one for exterior areas and one for interior surfaces such as the inside of doors.

OK, everybody else has done their best to prevent your car from rusting away. Now you have to get more than your pocket book into the job — you've got to apply some elbow grease . . . and water and soap and waxes and polishes and . . . .

Water is the best way to cut down the conductivity of the salt. Clean water dilutes the salt and its effects. And it's especially important to get the underside of the car, rocker panels, and wheel wells flushed out. The best way to get to the underside is at a commercial car wash; either drive-thru or do-it-yourself.

However, a word of caution is required. Remember the term is clean water. Many car washes have been lauded lately for their reuse of water. This is fine as long as they aren't using the recycled water in the final rinse or in the underside spray heads. Spraying somebody else's salt water onto your car isn't going to help rust prevention at all.

In the coin-operated do-it-yourself booths, take the spray gun and hit every square inch of those inner wheel wells, particularly along the insides of the fenders and along the seam between the main body and fenders. And do your best to get the entire underside of the vehicle. Attack it from the front, back and both sides.

You certainly want to clean the visible surfaces of your car, too. Mild dish washing soaps, sponges and water are best for this. Again, some good old fashioned scrubbing on lower body panels that are exposed to heavy salt spray is a must. But be careful when working near sheet metal edges of the body or you could get a nasty cut.

Use clean turkish towels to dry the surface. Last year's beach towel qualifies if it is clean, soft and has a deep nap. The deep nap lifts particles away from the paint, preventing scratches. Use only one side and get a clean towel when the one you're using is dirty.

Always work in small areas, using steady, medium pressure with long arm-length strokes in line with the vehicle. Never use a swirling motion.

Chamois can scratch your paint if not used properly. The proper way to employ them is after the car has already been washed, rinsed and dried. Then wet the car down again and use the chamois.

You'll want to wash the car at least once a month, weekly if you can. But before winter sets in, you need to really clean and polish the vehicle.

With older cars you'll want to remove dead paint with a polish, not rubbing compound. Abrasive rubbing compounds can remove all the paint, leaving nothing but bare metal

continued

continued

While there are many good commercial car wash aids available, mild dish soaps work just as well.

targeted for rust. Be especially careful around striping because even polish can remove these from the surface.

Now you'll want to take care of nicks, chips and scratches in the paint. The paint does more than give your car its color, it also provides an excellent barrier against rust. And any place in the surface where the paint has been removed or thinned is a place for rust to get a hold.

If the body is already showing signs of rust, you are going to have to strip the rusted area, remove all traces of the rust, prime and repaint.

To prepare a nick, chip or scratch for touch-up, it must first be deep-cleaned. Washing with soapy water (dish soap works fine, but strong detergents are harmful to the finish) is a start. Be sure to rinse and dry the area completely. Then go over the spot with a wax or grease remover to get rid of any gunk that's in the damaged area or the paint won't take. You may even need a toothbrush to get down to the bare metal.

You'll also want to do your paint touch-up on a day when the temperature is 70 degrees Fahrenheit or warmer because many paints are hard to handle below that temperature and may not set properly when it's too cold.

Don't dash to the parts store and grab a can of touch-up spray paint. If you do, you'll have to sand and prepare the entire area you're touching

continued

Getting all the salt washed away from the inner wheel wells and underside of the car is especially critical in the winter.

Deep cleaning is required before applying your winter coat of wax.

continued

Touch-up painting is done in dots.

up. Then when you're all done its finish will look worse than when you started — unless you're a real pro or extremely lucky — which few of us are.

All you really need is a small touch-up applicator (kit, tube, can, bottle or what-have-you) from a dealer or supply store in the appropriate factory color. Any time you have the car repainted, try to get a small can of the paint used for future touch-ups.

Use a small camel's hair brush (No. 1 or No. 2 artist brush) to dot in the damaged area. You'll probably want to practice on a coffee can before attacking your car. Using the dotting fashion, fill the nick, chip or scratch. Don't try to brush in the paint or blend it in. Just add tiny dots of paint until the area has been filled.

Remember, the new paint may not quite match the origina! because the weather has faded the finish. Also, metallic paints are almost impossible to match, so don't expect too much. That's another reason for dotting in the paint: The less paint you smear around, the less noticeable the job.

Fine, let's get on with the cleaning. Remove all the dead bugs, road tar and other stains from the washed surface. A warm-water soak will usually remove dead insects. Road tar and other stains come off with the solvent the rustproofers give you to clean up overspray. Charcoal lighter fluid also works well.

Use a cleaner, not a cleaner/polisher combination, to thoroughly clean the surface. Then seal the surface with a high-quality wax. If your paint is in excellent shape it is OK to use a cleaner/polisher, but you'll still need a separate wax coat.

Of course the latest rage is silicone surface sealants. These require a base coat that must be applied instead of wax. If the car has already been waxed, the wax will have to be completely removed with a solvent. After the base sealant coat is applied, there is a conditioning coat to be applied.

Custom alloy wheels need special attention since once they start to corrode it is almost impossible to stop, let alone get them restored to original condition. To protect them, use commercial wheel cleaners available from most wheel makers. Heavy-duty wheel waxes or two coats of silicone spray work well for steel wheels.

Since your car does have surfaces other than the painted metal ones, you'll probably also be investing money and energy in products that deep-clean and protect them, too. Vinyl tops, convertible tops, weather stripping, tires, etc., all need to be cleaned and protected. As always, heed this often repeated advice: Follow the instructions on the container.

Keeping your car dry is also an important step to protecting it from rust. If your car accumulates ice and snow, it would be better to keep it in an unheated garage or leave it outside than to put it in a heated garage. In a heated garage, the ice and snow melt to create a moist, humid condition that is very conducive to corrosion. If left outside or in an unheated garage, even if it gets warm enough to melt some of the ice and snow, the humidity is so low there's a good chance rust won't get started because the electrolyte will dry up.

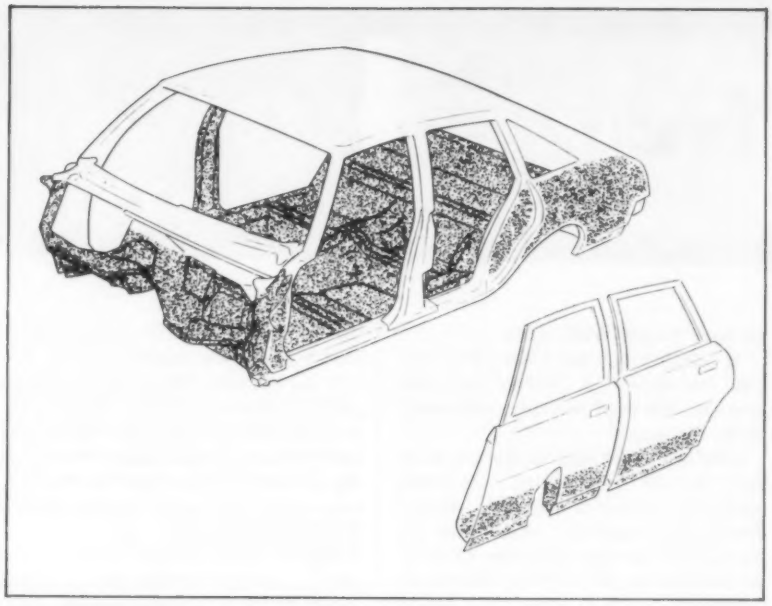
Remember, as the rustproofers say, "Rust never sleeps."

SOMETHING TO THINK ABOUT

Is driving a clean car safer than driving a dirty car? Yes and no.

People driving freshly cleaned vehicles are usually super-careful, keeping an eye out for anything that might mess the vehicle's finish. But their reaction to those "dirty" hazards is sometimes totally unsafe. Especially when they take violent action to avoid a small mud puddle and swerve into another lane.

Think about it. And while you're thinking about it, re-read "The Great White-Out" in the October 1982 DRIVER to help you make it through this winter safely.



The shaded areas are those that get rust-proofed.

Regular winter washing and waxing is necessary because rust never sleeps.

BACKFIRE

LETTERS to the EDITOR

ENVIRONMENTAL CONCERNS

Referring to your article in the June 1982 issue titled "Larger is Safer."

I fundamentally disagree with the premises in the article that larger diesel powered cars are better. "The impact of diesel engines can be significant on all transportation fronts . . ." Sure, but what about environmental concerns? More diesels will definitely mean more hydrocarbons, carbon monoxide, nitrogen oxide and particulate emissions.

I have not read every issue of DRIVER Magazine, and therefore, do not remember if you have published an article on hydrogen fuel for "all" transportation systems (including aircraft, heating and cooling homes, as a fuel for gas stoves, etc.). Hydrogen fuel can be manufactured from a coal gasification process or through electrolysis of water that is nonpolluting. Burning hydrogen is nonpolluting as it only produces water vapor. Hydrogen is the most abundant element in the universe. And can be stored in hydrides, safely, much more than your gas tank or propane tank. So, here you have an abundant, non-polluting and safe fuel.

There's even eight issued U.S. patents that show how to use heat of exhaust to separate hydrogen from water and use it to run your car.

1st Lt. Chester Twarog
Buckley ANG Base, CO 80011

The June 1982 DRIVER article did address environmental concerns. The "Larger is Safer" story reported on a U.S. Environmental Protection Agency cold weather study in which diesel-powered cars "didn't increase emissions of currently regulated pollutants . . . didn't increase emissions of hydrocarbons, carbon monoxide or nitrogen oxides," although "the amount of particulates did increase significantly."

SIX LASHES

Referring to Lt. Cmdr. Chris Walter's letter in the BACKFIRE column of your August 1982 issue.

His letter may have been the best you've received in the last six months, but your response left much to be desired.

The excellent rear brake on Walter's Suzuki complements an even more impressive pair of discs on the front of the machine. Surely you are aware that motorcycles stop straighter and quicker when both brakes are applied?

I recommend six lashes with a busted brake hose across the throttle fingers (to be applied by Dr. Harry Hurt) for not advising Walter to practice panic stops in a parking lot! Also, shame on you.

Allen Flentge
Ft. Hood, TX

PRODUCER'S GOOF

In "The Editor Speaks" column, August 1982, I noted the mention of seat belt usage in TV productions, and was glad to hear some producers will be helping in this area.

I had noted in one episode of "Dallas" where Bobby and Pam got in a car with their little baby and *did not* put the baby in a car seat, nor did they wear seat belts. And they are supposed to be loving, caring parents.

I always wear my seat belt and so do those that ride in my car. My grandkids are also always buckled in.

Keep up the good work.

Delores Bohler
St. Louis, MO

COME ON AMERICA!

I have been a regular reader of your magazine for 10 years. Prior to that I was an RAF pilot, and travelled the world, driving on the left, the right — and occasionally down the center! I am now a Safety Officer at RAF Mildenhall, where one of my duties is to educate American newcomers to drive on the LEFT HAND SIDE (probably 45% of the world's traffic still drives on the left — ie. all the scores of countries except Canada that formed the British Empire, plus Japan and a few others).

Your editorial letters on seat belts interest me enormously. I am quite ashamed that we must wait in Britain until 31 January 1983 before the wearing of seat belts becomes mandatory, when other European nations passed this law many years ago. From 31 January 1983, annual British road deaths, currently 5000+ are expected to fall by up to twenty percent. That represents 1000 lives saved per annum — surely worthwhile? Hospital/medical treatment in Britain is also 'free' to all, from a costly national budget. Millions of 'pounds' will be saved when we *all* wear our seat belts, and hospital surgeons will be able to turn to other pressing medical problems, as injuries are prevented or reduced in severity. The wearing of high quality crash helmets by motorcyclists, has of course been compulsory for many years.

I enjoyed the description in the 'July' John Ecklin letter — "pedestrians who LOLLILAG across the street." In Britain, vehicular traffic has priority over pedestrians except at established pedestrian crossings.

Finally, and a topic on which I would like to see more opinions: At this United States Air Force operated RAF Base, nearly *all* our reportable vehicle accidents (and most non-reportable) are *SINGLE VEHICLE*. This year, 1982, tractor trailers, passenger vehicles, trucks, motorcycles, private cars have all been wrecked, without another vehicle in sight. Yes, Great Britain *is* the most demanding of driving environments, with more vehicles per mile than anywhere on earth — but, it also enjoys a very high position in world vehicle safety. Lack of driving skill and judgment accounts for most of *our* accidents — and of course alcohol. Can anyone produce a magic formula to *STOP* single vehicle accidents?

Come on America! Let's see you

producing a national law for mandatory wearing of seat belts, and approved motorcycle helmets. Your annual road fatalities will then drop from 52,000 to at least 40,000! What a saving! Keep printing your magazine — it stimulates "safety talk" all around the world.

"Red" Dunningham
RAF Mildenhall, UK

FRUSTRATING DAYS

I left work feeling the effects of a hectic day. The fast pace had been unreal. Not one thing attempted went right. It took me eight tries to get a message typed. The boss wanted the draft of his report right away, all the phones rang at once, and the major down the hall was bugging me for his leave slip. The kids got out of school early too — I had to work that into my schedule. By the day's end, I was pretty worked up. Tense! To add to my frustrations I had four hours of night school. I would have traded anyone for a cold beer, a recliner, and the boob-tube.

The traffic was the usual bumper-to-bumper. I wanted to gain a little time so I tried to get around some of the slower traffic. Thinking, "you slow turtles, you have all the time in the world to sightsee!" Then it happened. Signaling and moving into the right lane to go around the two cars coming to a stop in front of me, I glimpsed two pedestrians in the crosswalk to my left. I barely missed them. Then I realized why the cars in front were slowed. They were yielding right of way to the pedestrians in the cross-walk! I blew right by them — the split second my attention was not on driving had almost cost the lives of two people.

Any one circumstance could have changed the outcome of this occurrence. For instance, if the pedestrians had been walking one stride faster, or I had been going five mph slower. I was relieved when I slowed and saw the two pedestrians complete their crossing safely. I could not blame or scold myself enough for such a close call. I hadn't had the opportunity to apologize to the two people, but I was glad my lesson did not cost their lives. This was a lesson I would remember, especially on frustrating days. I told myself that one must remember to put aside the everyday stresses and attend to the business of safe driving when you sit behind the wheel. I made it home, changed and went on to school that day. My evening ended without tragedy — hopefully this information will keep you from living my experience.

Anonymous

SEATBELTS SAVE AGAIN!

I read your article in our base newspaper "The Missilier" regarding seat belts. I have always worn them and know they work and save lives.

I was sent out on a wage survey with another co-worker from Patrick AFB and spent most of the day traveling from one place of business to another. We were returning to the base about 2:00 p.m. in the afternoon when a city employee flagged us down to a complete stop because they were hanging heavy electric wiring from one side of the road to the other. As I stopped, our paperwork started to fall to the floor and I saw my rider reach down to catch them. At that moment I heard a loud explosion and felt my seat belt tighten across my chest, which kept me from crushing into the steering wheel. After a few seconds I looked into my rearview mirror and saw what looked like a half of an automobile, and wondered what it was doing in the back of my car.

What actually happened was, I had been hit in the rear by a person driving another car at approximately 50-55 m.p.h., when he took his eyes off the road. This caused my car to be pushed 36 feet forward.

The passenger in my car obtained a severe whiplash and still continues to have problems. She was not wearing her seat belt. I was fine, and after being pried out of my car, walked away. One passenger in the other car was seriously injured and critical for a week.

The first question the police officer asked me was, "Were you wearing your seat belt?" "Yes," I replied. And my passenger replied, "I wasn't." The cost to my new 1981 Cordoba was almost $3000.

I just wanted to share my experience and wish everyone could realize the importance of wearing a seat belt — I BELIEVE IN THEM.

Virginia Anderson
Patrick AFB, FL

NO PROTECTION FOR EMOTIONAL DRIVERS!

Your "Editor's Note" on the article entitled "Emotions at the Wheel," (September 1982), just makes me wonder why anyone would want to protect the names of people who, because of their "emotional stress," want to drive someone else off the road. Many innocent people are killed by these "emotional drivers." I hope Mr. A and Mr. Z have been referred to the nearest court to get their licenses revoked.

Please don't reply you wanted to make an example of them. I can write a good fictitious story if you'd like for your next editorial. It wouldn't be protecting a potentially hazardous driver, who could at any moment take the life of a child. The publishing of names is not important. The reassurance that two emotional drivers are off the road would be greatly appreciated. We don't need to protect them, we need to take action against them.

Robert G. Roman, HM3, USN
Charleston Naval Base

Our main interest is protecting you, which is why we related that story. As for "A" and "Z," the one we know doesn't drive that way anymore, but the other is still out there somewhere.

☆U.S. GOVERNMENT PRINTING OFFICE: 1983 683-027/2

3 things for *Drivers* to REMEMBER about 2-WHEELERS

- Many two-wheelers can stop faster than you can. Leave extra space between yourself and any two-wheeler ahead of you.
- Because of their size, they can easily hide in your blind spot, so make an extra eye and mirror check.
- Don't get trapped into the old squeeze play. When you make a right turn, be sure no small vehicle is sneaking by on your right between you and the curb.

The SHORTER days of WINTER are here.
WATCH OUT for TWO-WHEELERS!